Project Report

Queries from "SQLQueries.sql" are listed with a query number (Q) that corresponds to the narrative.

Booking Appointments

Patients ask Helen, the office secretary, for appointments, either by post, phoning or dropping in. For a new customer Helen creates a new patient record (Q1.1) taking their details (name, address, DOB, contact details).

- The database prevents duplicate patient data by checking that the combination of the patient's full name and date of birth are unique.
- Duplication of addresses in the patient address table is prevented by placing a unique constraint on the Eircode (an identifier unique for every address in Ireland).

A new appointment cannot be made if a patient has an overdue bill. A bill is defined overdue if it is unpaid 30 days after the date of the appointment or if the total outstanding amount exceeds €50 for a previous appointment. Helen can check if the patient has an overdue bill in the view "Overdue Bills" (Q1.2). It displays the name of patients, their outstanding balance, and the total days from the current date since the appointment as "Days Unpaid".

Helen can check for free time slots in the view "Open Appointments", creating a filter if necessary (Q1.3). When creating a new appointment (Q1.4), the time and date for new appointments are entered into the appointments table along with the patient's id.

- The date created and status fields default to current date and "active" respectively.
- Appointments must have a start time during the business hours of 08:00 am to 15:30 pm.

Any scheduled work can be entered into the procedures table (Q1.5) using the corresponding treatment id or treatment name and the appointment's invoice id. If it is a new patient or there is no scheduled work yet, a consultation (treatment id 101) can be entered initially. This will assign a default fee and treatment duration and any further work can be updated later.

All treatments have a fee and duration stored in the treatment details table that is used to generate itemised bills, total fees and an estimated end time for appointments. This derived information is available in the views. Dr Mulcahy can add new or update treatment details including the fee and duration stored in the treatment details table (Q1.6).

Appointment Cancelations

The date and time can be updated for any appointment by referencing the correct appointment id (Q2.1). If an appointment is cancelled then Helen changes the appointment status to "cancelled" and removes (if any) arranged procedures assigned for that appointment (Q2.2). She then adds the cancellation code 102 into the procedures table with the corresponding appointment id. If the cancellation was late an additional charge of €10 is applied to the invoice using the late cancellation code 103 instead.

Appointment Visits

When a patient arrives for an appointment, Dr Mulcahy can retrieve the treatments that are to be carried out using the appointment id (Q3.1).

After the appointment, Dr Mulcahy can update the procedures table to enter any additional treatment that was performed and update the status of the appointment as "completed" (Q3.2). This information will be used to add the appropriate fee to the invoice.

Follow Up Appointments

Follow up appointments are stored in a new table as some procedures require specialist treatment that Dr Mulcahy cannot provide.

If follow up treatments are required, a new appointment date and the current appointment id is added to the follow up table (Q4.1) which is assigned the default "pending" status. Dr Mulcahy can enter follow up procedures using the follow up id (Q4.2) to the follow up procedures table.

Before a new appointment is created Helen can select the treatments listed in the follow up procedures table that require a patient referral (Q4.3), and organise a suitable referral (See referral section for more details).

Then if the patient also requires in-house treatments, she creates a new appointment record for the patient with the scheduled time and in-house treatments listed in the follow up record (Q4.4). Once she is finished organising that specific follow up appointment, she can set the follow up status field of the record to "complete" (Q4.5).

Referral Appointments

Each treatment is group by a speciality code. All In house treatments have a referral code of 100. Every dentist in the dentist table is assigned a speciality code so Helen can select the appropriate dentist for each patient referral (Q6.1). Contact details for the dentist and their dental practice are stored in the dentist and clinic tables.

Payments

Patients can pay by cheque, credit card or cash, either by post or by dropping in. The invoice id is enclosed with the payment. Helen records the amount paid and payment type ('cheque', 'card' or 'cash') (Q7.1). Credit card or cheque transactions are recorded in the corresponding table using the payment id as a reference (Q7.2). These are for keeping a record of the transaction and not for storing patients personal banking information.

Helen can refund payments using invoice id and payment date. She updates the payment status to cancelled (Q7.3). This will remove that payment from the patients balance calculations.

Weekly Reminders

Every Tuesday Helen can create/update a view for the weekly appointments (e.g., "Wk17 appointments" for the week starting 27th April to 3rd May 2021). This provides the upcoming appointment details along with patient name and contact details, which Helen can use to send reminders to patients. She can also retrieve the information between any date (Q8.1) and all treatments for an appointment (Q3.1).

Overdue Bills

At about 2:30pm, she prepares bills, overdue bills can be tracked in the view "Unpaid Bills".
- This view displays all bills that are "unpaid", listing the patient's name, the appointment id, and the total fees, total payments made and remaining balance.
- Any payments that were made are subtracted from the total fees and the remaining balance of the bill is displayed as Total Remain.

Helen can retrieve an itemised list of all treatments and fees for an appointment (Q8.2)

Appendix 1:

All treatments/procedures are assigned a referral id and treatment id.

In-House 100	Treatment Id
Consultation	101
Cancellation	102
Late Cancellation	103

In-House Procedure Id 100	
Oral Health Check Up	201
Root Canal	202
Dental Crowns	203
Tooth Extraction	204
Scale and Polish	205
X-ray	206

Orthodontics 200	
Clear Aligners	207
Palate Expanders	208

Periodontics 300	
Gum Grafts	209
Dental Implant Placement	210

Oral/Maxillofacial Surgery 400	
Cyst Removal	211
Surgical Tooth Removal	212

Paediatric Dentistry 500	
Tooth Sealant	213
Paediatric Pulp Therapy	214